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MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1

50/66.6/83.3 MVA Conservator Substation Transformer - 154000Y/88915 Grounded Wye Primary, 46000Y/26559 Grounded Wye Secondary - 12460V Delta Tertiary - ONAN/ONAF/ONAF, ANSI 70 Grey

Product ID: 343866



Image: MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1

Larson Electronics LLC manufactures a wide variety of products, including custom built to spec designs. The pictures displayed for this unit are a general representation of form factor for the product line and may not accurately represent this exact configuration in every detail due to custom builds and changes between similar products in our standard catalog. The specifics for this configuration are listed in the specification table and supporting documentation (CAD files, Dimensional Drawing, Name Plate Diagram, Wiring Diagram, etc.). This means that specific details (receptacles, plugs, wires, connections, mounting brackets, external finishes, etc.) may not be accurately represented in images vs specifications. Please review specifications and do not order based solely on images.

MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 Conservator Transformer

Transformer Type: Substation Power Transformer, Conservator Type, Cope Type, 3 Separate Windings
Transformer Configuration: Liquid Filled Pad Mounted
Transformer Feed Type: Radial Feed
Operation: Approved for Step-Down Operations
Phase: Single Phase
Capacity (w/o Fans): HV - 50 MVA (50,000 KVA), LV - 50 MVA (50,000 KVA), TV - 17.5 MVA (17,500 KVA)
Capacity (w/ 1st Stage Fans): HV - 66.6 MVA (66,600 KVA), LV - 66.6 MVA (66,600 KVA), TV - 23.3 MVA (23,300 KVA)
Capacity (w/ 2nd Stage Fans): HV - 83.3 MVA (83,300 KVA), LV - 83.3 MVA (83,300 KVA), TV - 29.16 MVA (29,160 KVA)
Vector Group: Ii0i0
Primary Voltage: 154000Y/88915
Primary Voltage Switch: N/A
Primary Voltage Class: 161 kV Class
Primary Phasor: Grounded Wye
Primary BIL: 750 kV
Primary Neutral BIL: 250 kV
Secondary Voltage: 46000Y/26559
Secondary Voltage Class: 48 kV Class
Secondary Phasor: Grounded Wye
Secondary BIL: 250 kV

Ratings

Meets/Exceeds DOE 2016 Efficiency Ratings
Meets/Exceeds CSA Efficiency Ratings
Complies with ANSI / IEEE C57.12.00
Complies with ANSI / IEEE C57 12.28
Complies with ANSI / IEEE C57 12.29
Complies with ANSI / IEEE C57 12.34
Complies with CSA C2.1-06
Complies with CSA C802-3
Complies with ANSI / IEEE C57 12.35
Complies with ANSI / IEEE C57.12.70
Complies with ANSI / IEEE C57.12.110
Complies with ANSI / IEEE C57.12.131
Complies with ANSI / IEEE C62.11
Complies with CSA C88-16
Complies with ANSI / IEEE 386
Complies with ANSI / IEEE C2
Complies with ANSI / IEEE C37.47
Complies with ANSI Z535.4
Complies with CSA C50

Secondary Neutral BIL: 250 kV
Tertiary Voltage: 12460V
Tertiary Voltage Class: 15 kV Class
Tertiary Phasor: Delta
Tertiary BIL: 150 kV
Tertiary Neutral BIL: 150 kV
Frequency: 60 Hz
Temperature Rise: Top Oil - 50°C, Winding Average - 55°C, Hottest - 68°C
Insulation Rating: Class E Insulation - 120°C, 248°F
Cooling Class: ONAN/ONAF/ONAF; Self-Cooled/Fan-Cooled
Forced Air (Fans): Included, 208Y/120 VAC, 60 Hz, 3Ph
HV Tap Changer: 5-Position De-energized Tap Changer
HV Tap Qty: (4) FCAN Above Taps
HV Tap %: 2.5% Taps
HV Tap Changer Switch Rating: 154 kV, OFF-Load Rated
HV Tap Changer Switch Location: High Voltage (HV)
TV Tap Changer: 3-Position De-energized Tap Changer
TV Tap Qty: (2) FCAN Above Taps
TV Tap %: 2.5% Taps
HV Tap Changer Switch Rating: 15 kV, OFF-Load Rated
Impedance: Between HV/LV - 8.9%, Between HV/TV ~ 5% @17.5 MVA, LV/TV ~ 1.8% @17.5 MVA
Primary Connection Type: Live Front
Primary Termination Arrangement: Top Mounted Terminals
Primary Termination: Porcelain Bushings, Condenser Type, Air Bushing
Primary Connection Qty: (2)
Primary Bushing Rating: 161 kV Class, 750 kV BIL
Primary Neutral Connection: Included
Primary Surge Arrestors: Included, Side Station Class
Primary Surge Arrestor Voltage Rating: 161 kV
Primary Surge Arrestor MCOV Rating: 144 kV
Primary Over Current Protection (OCP): N/A
Primary Over Current Protection Method: N/A
Primary Over Current Protection Holder: N/A

Primary Current Transformer(s): N/A

Primary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs
Secondary Connection Type: Live Front
Secondary Termination Arrangement: Top Mounted Porcelain Bushings
Secondary Connections: Porcelain Bushings, Condenser Type, Air Bushing
Secondary Connection Qty: (2)
Secondary Line Bushing Rating: 46 kV Class, 250 kV BIL
Secondary Over Current Protection (OCP): N/A
Secondary Neutral Connection: Included
Secondary Neutral Bushing Rating: 46 kV Class, 250 kV BIL
Secondary Surge Arrestors: Included, Side Station Class
Secondary Surge Arrestor Voltage Rating: 115 kV
Secondary Surge Arrestor MCOV Rating: 46 kV
Secondary Current Transformer(s): Included, 1200/1000/800/600/400/200:5, (3) Per Each Bushing: (2) 4000:5 SR, Relaying, 2.5L800 Accuracy & (1) 1200:5 MR, Metering, 2.5L800 Accuracy, Accuracy top to bottom
Secondary Grounding Provisions: (1) NEMA Ground Bar attached to tank via (2) Welded Ground Bungs
Tertiary Connection Type: Live Front
Tertiary Termination Arrangement: Top Mounted Porcelain Bushings
Tertiary Termination: Porcelain Bushings, Condenser Type, Air Bushing
Tertiary Connection Qty: (2)
Tertiary Line Bushing Rating: 25 kV Class, 150 kV BIL
Tertiary Neutral Connection: Included
Tertiary Neutral Bushing Rating: 25 kV Class, 150 kV BIL
Teriary Surge Arrestors: Included, Side Station Class, 46 kV, 36.5 kV MCOV
Metering Current Transformer (CT): N/A

Complies with ASTM D3487
Complies with ASTM D6871
Complies with NEMA 260-1996
Complies with 10 CFR Part 431
Complies with CSA C227.4 & C227.5
Complies with CSA C802.1
Complies with CSA C88
Complies with ANSI / IEEE C62.22
Complies with CSA C88.1

Features
Hot Stick Included, HV Door Mount
Penta-head Bolt Entry Assembly
High-Fire Point Insulating Fluid
Non-PCB Insulating Fluid
Tamper Proof Housing
Hinged Front Compartment Doors, Pad Lockable
NEMA 3R Wiring Compartment

Efficiency %: 98.00%
Based on transformer operating at 50% of nameplate base kVA.

Load Losses Based on 85°C Reference Temp.
No Load Loss (in watts): TBD
Full Load Loss (in watts) at 100%: TBD
Total Load Loss (in watts) at 100%: TBD
Total Losses at 55°C LL Temp.& 20°C NL Temp.
Total Load Loss (in watts) at 50%: TBD

Note: *Losses offered are typical only, not guaranteed*

Labeling:
Externally Stencilled (Painted) KVA Rating
Externally Stencilled (Painted) Voltage Rating
External Non-PCB Label
External Warning & Danger Label
External Barcode Label
Internal Busing & Accessory Labeling
Stainless Steel Riveted Nameplate

Metering Panel: N/A
Auxiliary Control Panel: Included, 208Y/120 VAC, 60 Hz, 3Ph / 125VDC
Load Break Switch: N/A
Load Break Switch Qty: N/A
Load Break Switch Rating: N/A
Load Break Switch Location: N/A
Efficiency Standard(s): Meets ANSI/IEEE Standards
K-Factor Rating (Harmonic Mitigation): K-1 (Standard)
Pulse Drive Rating: N/A
Insulation Fluid: Mineral Oil Insulating Fluid, Non-PCB Fluid
Fluid (Oil) Capacity*: 7,925 Gallons
Fluid (Oil) Weight*: 60,848 Lbs
Liquid Level Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Liquid Temperature Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Winding Temperature Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Pressure/Vacuum Indicator: Analog Dial Gauge, w/ Alarm and Trip Contacts
Pressure Relief Device: Included, Automatic Action
Fault Indicator: Included, Buchholz Relay
Gas Sampler Valve: Included, Schrader Valve
Fill Valve: 1" NPT Port w/ Removable Bolt Plug
Fill Valve Location: Front Compartment
Drain Valve: 1" NPT Port w/ 5/8" NPT Sampler Valve
Drain Valve Location: Front Compartment
Winding Material: Copper
Ambient Temperature Rating: 40°C
Ambient Operating Temperature Range: -20°C to +40°C
Sound Level: 71 dBA
Elevation (Altitude): < 3,300ft (< 1000 m) Above Sea Level
Core Material: Grain Oriented Silicon Steel
Tank Material: Coated Steel
Cabinet Material: Coated Steel
Base Platform Material: Coated Steel
Control Box Material/Rating: Stainless Steel, NEMA 3R
Portability: Lifting lugs, provisions for jacking under base, w/ base construction suitable for using rollers or skidding
Housing Type: Metal Casing Liquid Filled Transformer
Enclosure Rating: NEMA 3R Weatherproof Wiring Cabinet, Sealed Tank

Seismic Rating: Yes

Paint Type: Weatherproof and UV Resistant Epoxy Coating and Undercoating
Finish Color: ANSI 70 Sky Grey
Mounting: Pad Mounted
Conduit Opening: N/A
Tank Cover Access Handhole: N/A
Dimensions*: 169.3"-W x 185"-D x 239"-H
Dry Weight (w/o Oil)*: TBD
Total Weight (Liquid Filled)*: 189,600 lbs
*Please note that numbers are approximate and subject to change

Factory Tests:
Winding Resistance Test
Insulation Resistance Test
Voltage Ratio Error Test
Separate Source Voltage Withstand Test
Short-circuit Impedance Test
No-load Loss (Wattage) Test
Load Loss (Wattage) Test
Induced Voltage Withstand Test
Pressure Integrity Test

Special Tests:
Temperature Rise Test
Lightning Impulse Level
Current Transformer Test
Dissolved Gas Analysis Test
Sweep Frequency Analysis Test

Shipping:

Shipped on pallet on open flatbed

Palletized on Wooden Pallet w/ Skid Pockets
Pallet Skid Facing Outward Sides of Truck
Note: *Crated shipping in lieu of palletizing can be done upon request for an additional fee*

Special Orders - Special Requirements
Contact us for special requirements
Toll Free: 1-800-369-6671
Intl: 1-903-270-1187
Fax: 1-903-765-7664
E-mail: sales@larsonelectronics.com

The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 Conservator Substation Transformer from Larson Electronics offers powerful, reliable, and efficient power distribution in outdoor locations. The low operating costs, low heat emissions, and low cost of ownership make this transformer ideal for a wide range of applications and businesses. This transformer ensures extra space for storing oil and is equipped with breathers to facilitate air flow. The conservator transformer should be installed on supporting structures.

PLEASE NOTE: ANY FREE SHIPPING OFFERS DO NOT APPLY TO POWER DISTRIBUTION PANELS, TRANSFORMERS, OR SUBSTATIONS*

Transformer Features: The industrial transformer features a primary voltage of three-phase 154000Y/88915 Grounded Wye and a secondary voltage of three-phase 46000Y/26559 Grounded Wye. This system is rated for 50 MVA (50,000 KVA) [Natural Cooled] / 66.6 MVA (66,600 KVA) [1st Stage Fan Cooled] / 83.3 MVA (83,300 KVA) [2nd Stage Fan Cooled] and is approved for step down operations. We offer systems with loop or radial feed, as well as dead front or live front primary connections. This transformer features a 5-position on load tap changer with four, + 2.5% taps above to allow small changes in voltage. There are no rapid rise relays or protection fuses present on the system.

The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 has fans for forced air cooling. This non-sealed system features breathers for cooling when operating temperatures increase.

Temperature Rise: This unit features 65°C temperature rise for reduced heat waste, increased reliability and longer life. At 65°C temperature rise, the transformer offers 50 MVA (50,000 KVA) [Natural Cooled] / 66.6 MVA (66,600 KVA) [1st Stage Fan Cooled] / 83.3 MVA (83,300 KVA) [2nd Stage Fan Cooled]. The transformer meets standard efficiency requirements. The combination of low temperature rise and high efficiency makes this unit suitable for use in electrical rooms, air conditioned spaces in buildings, underground vaults, and similar locations, in addition to outdoor areas.

Insulation Fluid: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 features mineral oil fluid (ONAN/ONAF/ONAF). We offer transformers with biodegradable or FR-3 fluids, if needed.

Biodegradable Fluid: Biodegradable cooling fluid (vegetable oil) has a higher heat capacity compared to mineral oil, making the liquid safer to use and more reliable during operations. Vegetable oil has a higher flash point and fire point than mineral oil, hydrocarbon oil, silicone oil and synthetic ester. This cooling fluid is also non-toxic and can tolerate higher breakdown voltages than mineral oil. When operating at high temperatures, biodegradable cooling liquid sustains up to 120% loan conditions, which helps preserve the transformer's lifespan and performance.

Gauges: The following gauges are included with the system: liquid level, temperature, fault indicator, and pressure/vacuum gauges. Standard liquid level, temperature, and pressure/vacuum gauges are analog, manual reading types.

Fault Pressure Devices: There is a Buchholz relay fault indicator on this unit.

Rapid Rise Relay: There are no rapid rise relays on the unit. This safety component is designed for protection when a rapid increase in tank pressure occurs. The relay is suitable for detecting sudden pressure fluctuations above predetermined safe limits.

Surge arresters: This system comes with surge arresters on the primary side.

Load Break Switch: The transformer is not equipped with a load break switch.

Valves: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 is equipped with a pressure relief valve, fill valve, and drain valve with sampler port.

Protection Fuses: This transformer does not have bayonet protection fuses on the primary side. For units without protection fuses, upstream protection is provided. We recommend provisions for protection fuses when possible, as blown fuses may require more frequent oil changes.

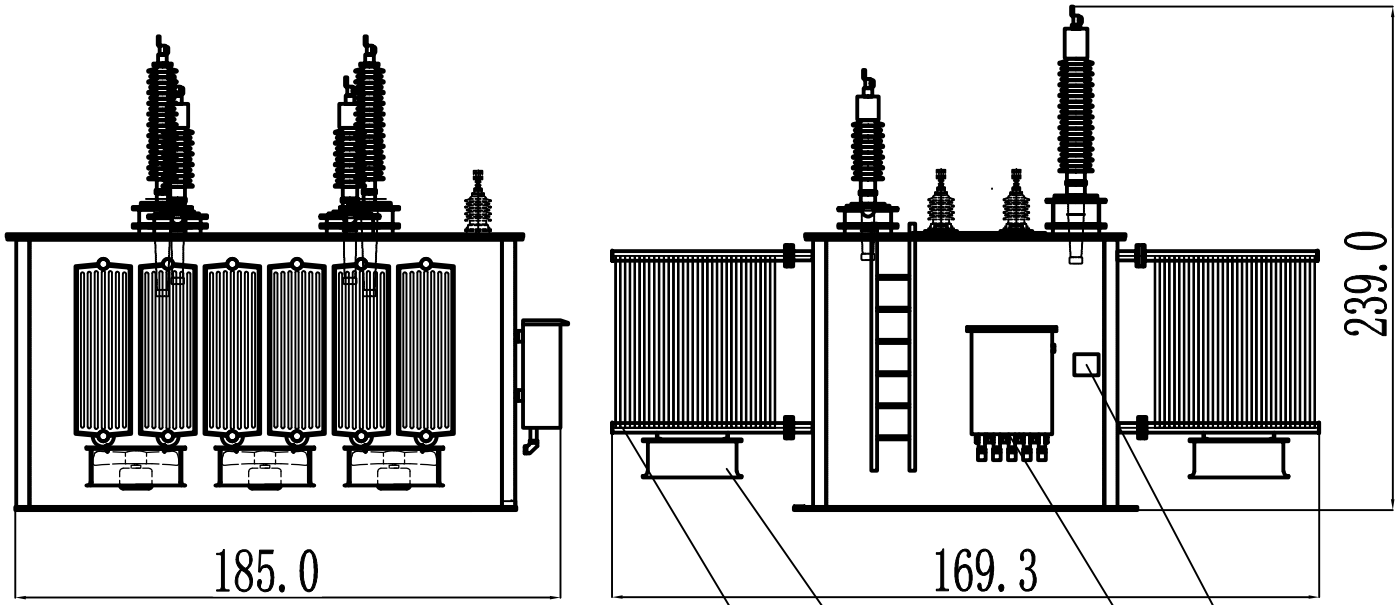
Mount: This conservator substation transformer should be installed on supporting structures, such as the roof of the transformer main tank.

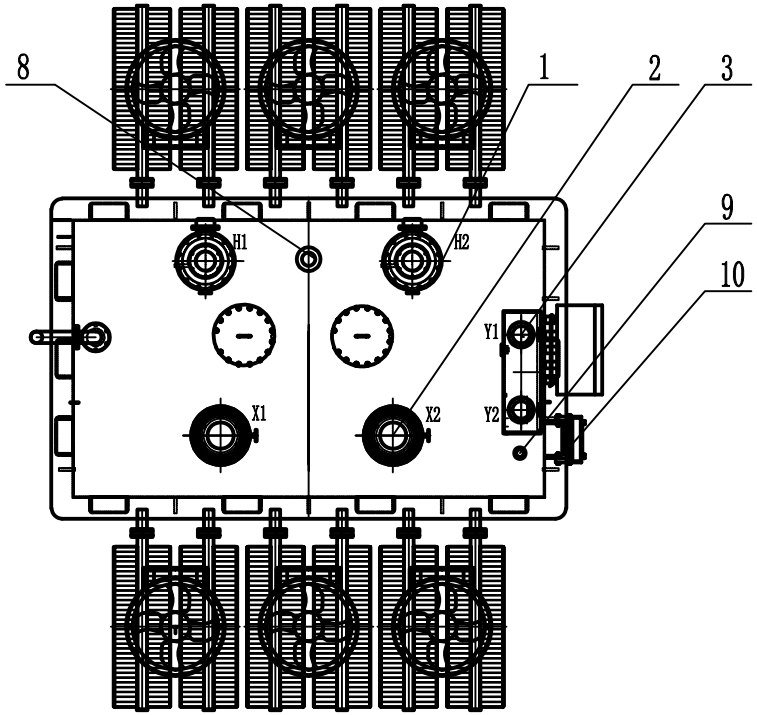
Benefits: The MT-PSTC-R7-1P-GEHR-50MVA-GTA-HT-LT-D6-AMFF-CZ-2ZZ-M1 transformer offers many benefits to consumers. This transformer provides owners with significant energy savings, as well as offering environmental benefits. Higher efficiency not only extends the life of the transformer, but also turns into cost savings for owners in the form of lower energy bills and decreased cost of ownership.

Applications: General purposes, industrial sites, electrical rooms, underground vaults, manufacturing facilities, steel plants, offshore, commercial, military, processing plants, electric power distribution, utilities, and more.

Larson Electronics is a manufacturer and as such can build stationary and portable transformer systems to your specifications. Although we carry several models of power distribution transformer systems, we can deliver custom ordered units almost as quickly as our prebuilt units. If this model does not meet your needs, please contact us at 1-800-369-6671 or sales@larsonelectronics.com to discuss your specific requirements.

Item	Core&coil	Tank	Oil	Total	Shipping w/oil
Weight(lbs)	94666	42329	60848 (7925Gallons)	189600	167992





item	code	name	number	notes
11				
10		Ladder	1	
9		YV No-load tap chenger	1	
8		HV No-load tap chenger	1	
7		Fans control box	1	
6		Transformer nameplate	1	
5		Fan	6	
4		panel-type radiator	12	
3		Y.V Bushing	2	
2		X.V Bushing	2	
1		H.V Bushing	2	

mark	rev.	zone	revision	sign.	date
design	RR		Standard		
examined					
checked	RB				
efrated			Approved		

50-56/66.67-74.67/83.33-93.33 MVA Conservator Substation Transformer

Phase mark	Weight	scale
total page		

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Remark: dimensions here are in inches.Only for approval/preliminary design..

Transformer cooler control cabinet information

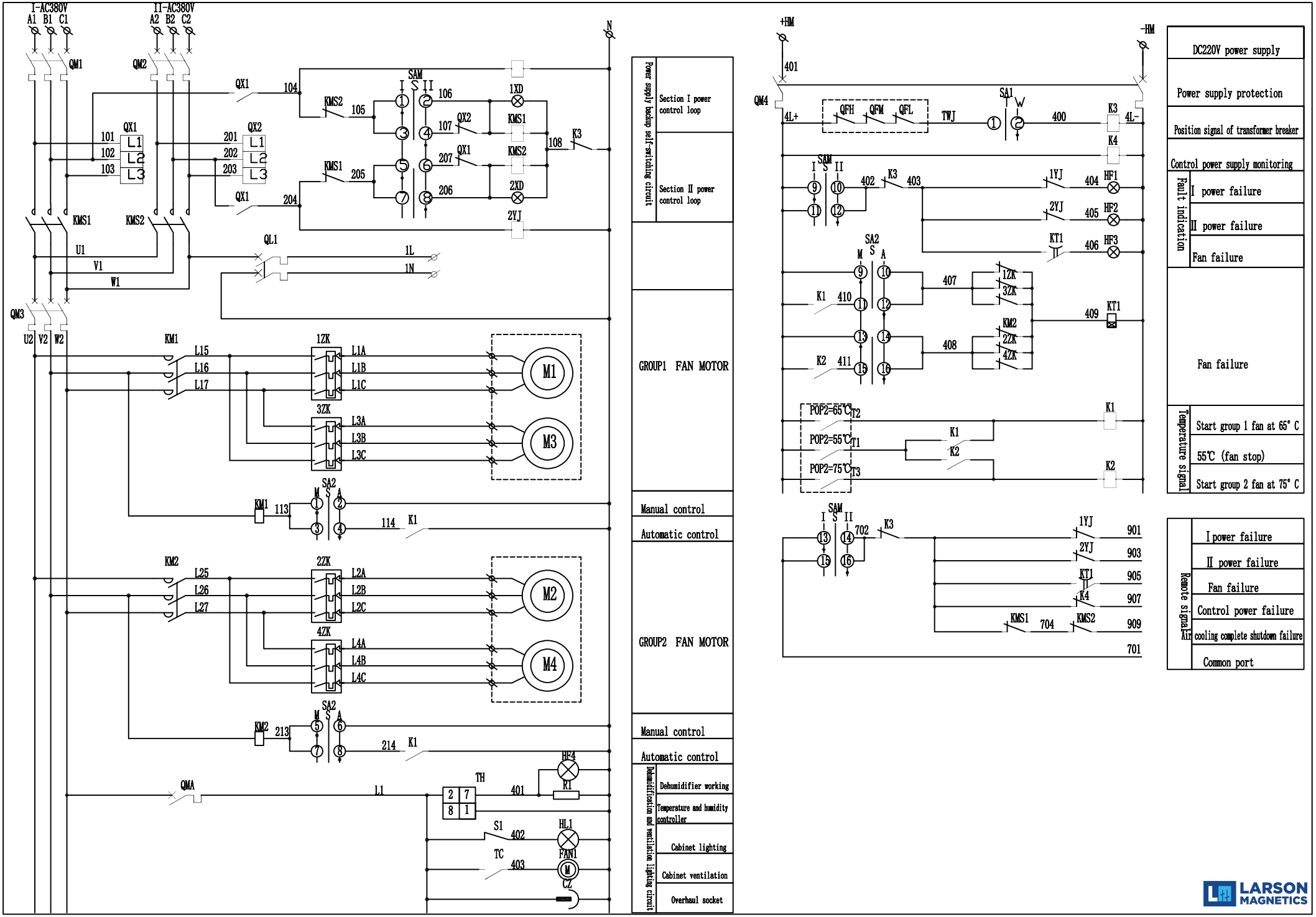
model:

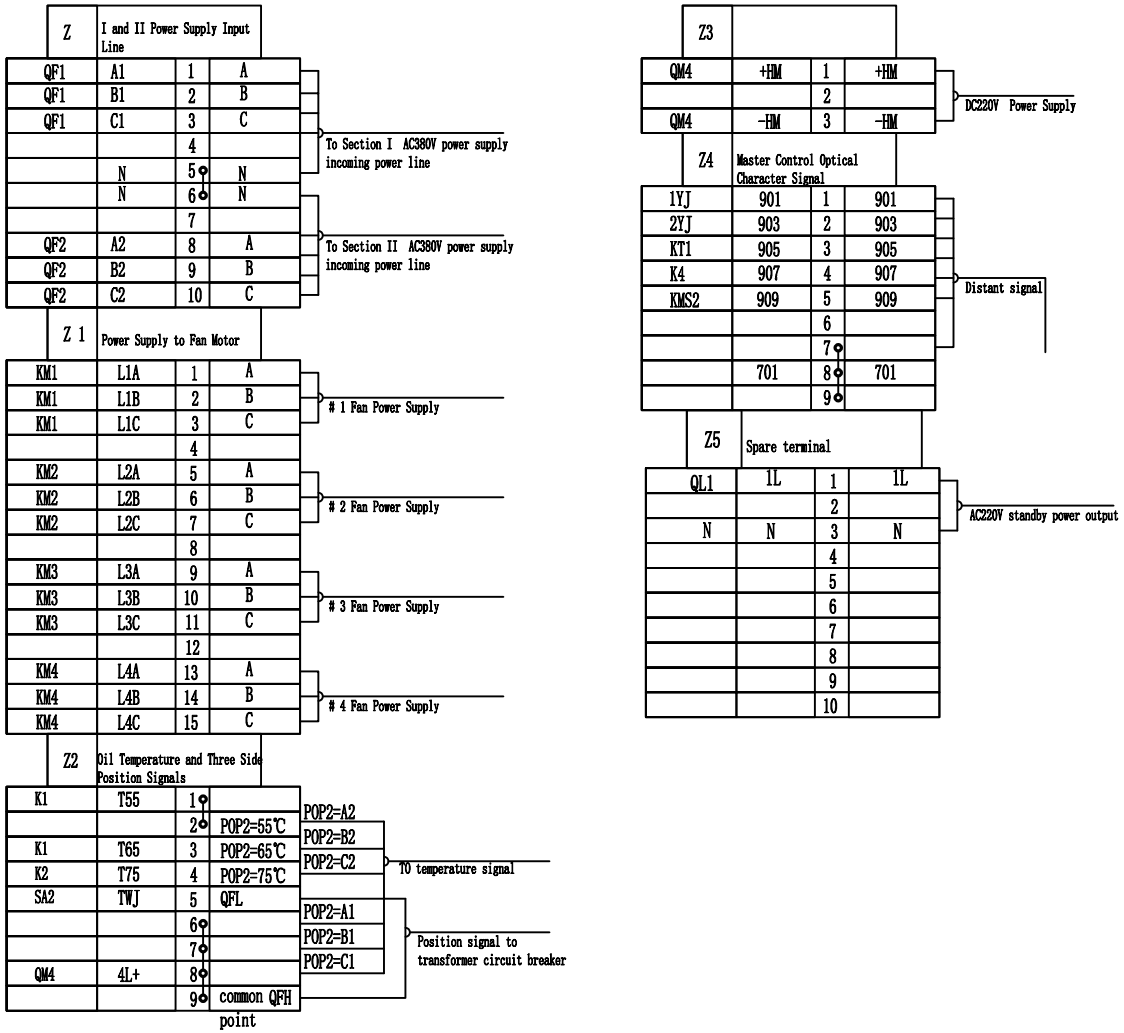
entry name:

Page number	Name	Remark
1	Contents	
2	Schematic diagram of transformer cooler control cabinet	
3	Terminal diagram of transformer cooler control cabinet	
4	Control principle diagram of transformer body	
5	Layout of transformer bushing current transformer	
6	Terminal diagram of transformer body	
7	Transformer cooler control cabinet cooler list	
8	Component layout of transformer cooler control cabinet	
9	Transformer cooler control cabinet outline dimension diagram	

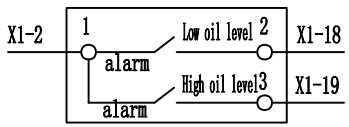
Note: 1. 4 fans, each with a power of 0.55kW
2. The risk control cabinet requires two power supply voltages, three-phase AC380V 50Hz
3. Install an on load switch controller on the background control screen with a 210 * 98 opening, Install two digital displays (one for oil level temperature controller and one for winding temperature controller) with holes of 152 * 76, Power supply L-N AC220V 50Hz

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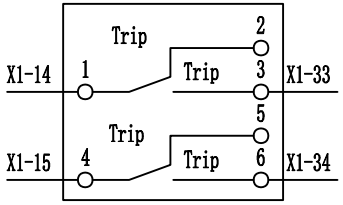

I-AC380V
A1 B1 C1
II-AC380V
A2 B2 C2
QM1
QM2
QX1
QX2
KMS1
KMS2
SAM
1XD
2XD
2YJ
K3
QL1
1L
1N
N
QM3
U2 V2 W2
KM1
1ZK
3ZK
M1
M3
SA2
K1
KM2
2ZK
4ZK
M2
M4
QMA
TH
HF4
R1
S1
HL1
FAN1
TC
CZ
Power supply backup self-switching circuit
Section I power control loop
Section II power control loop
GROUP1 FAN MOTOR
Manual control
Automatic control
GROUP2 FAN MOTOR
Manual control
Automatic control
Dehumidification and ventilation lighting circuit
Dehumidifier working
Temperature and humidity controller
Cabinet lighting
Cabinet ventilation
Overhaul socket
+HM
-HM
QM4
SA1
TWJ
QFH
QFM
QFL
1YJ
2YJ
KT1
HF1
HF2
HF3
POP2=65℃
POP2=55℃
POP2=75℃
DC220V power supply
Power supply protection
Position signal of transformer breaker
Control power supply monitoring
Fault indication
I power failure
II power failure
Fan failure
Fan failure
Temperature signal
Start group 1 fan at 65° C
55℃ (fan stop)
Start group 2 fan at 75° C
Remote signal
I power failure
II power failure
Fan failure
Control power failure
Air cooling complete shutdown failure
Common port


Z
I and II Power Supply Input Line
QF1 A1 1 A
QF1 B1 2 B
QF1 C1 3 C
4
N 5 N
N 6 N
7
QF2 A2 8 A
QF2 B2 9 B
QF2 C2 10 C
To Section I AC380V power supply incoming power line
To Section II AC380V power supply incoming power line
Z 1
Power Supply to Fan Motor
KM1 L1A 1 A
KM1 L1B 2 B
KM1 L1C 3 C
4
KM2 L2A 5 A
KM2 L2B 6 B
KM2 L2C 7 C
8
KM3 L3A 9 A
KM3 L3B 10 B
KM3 L3C 11 C
12
KM4 L4A 13 A
KM4 L4B 14 B
KM4 L4C 15 C
1 Fan Power Supply
2 Fan Power Supply
3 Fan Power Supply
4 Fan Power Supply
Z2
Oil Temperature and Three Side Position Signals
K1 T55 1
2 POP2=55℃
K1 T65 3 POP2=65℃
K2 T75 4 POP2=75℃
SA2 TWJ 5 QFL
6
7
QM4 4L+ 8
9 common QFH point
POP2=A2
POP2=B2
POP2=C2
TO temperature signal
POP2=A1
POP2=B1
POP2=C1
Position signal to transformer circuit breaker
Z3
QM4 +HM 1 +HM
2
QM4 -HM 3 -HM
DC220V Power Supply
Z4
Master Control Optical Character Signal
1YJ 901 1 901
2YJ 903 2 903
KT1 905 3 905
K4 907 4 907
KMS2 909 5 909
6
7
701 8 701
9
Distant signal
Z5
Spare terminal
QL1 1L 1 1L
2
N N 3 N
4
5
6
7
8
9
10
AC220V standby power output

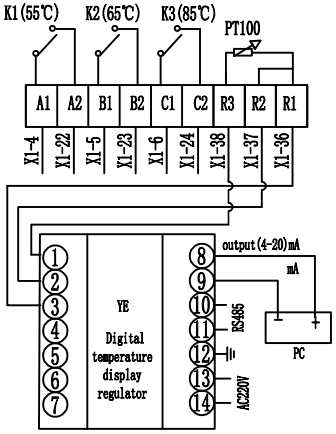
Tank oil level indicator POL1



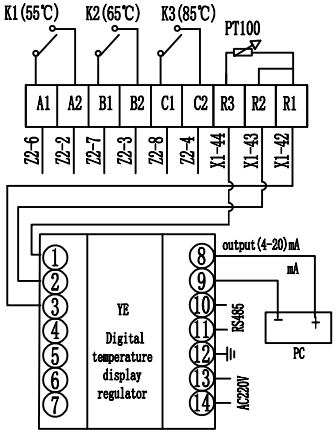
Pressure relief valve EPR1



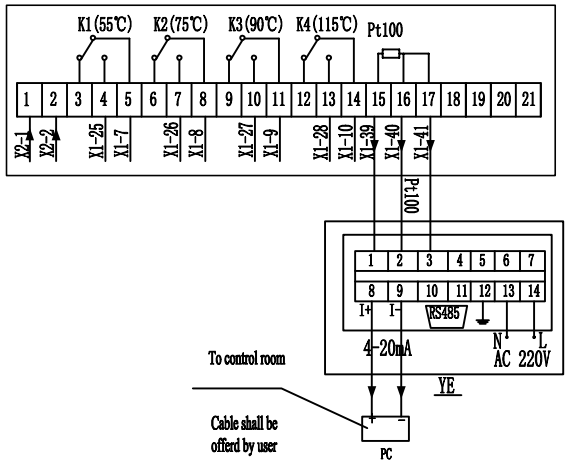
(Oil temperature controller)
Electrical wiring schematic diagram POP1

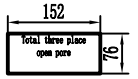


(Oil temperature controller)
Electrical wiring schematic diagram POP2

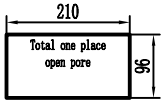


(winding thermometer)
Overall wiring diagram PW





YE The size of the opening pore on the screen of the main control room is as shown above (opening pore of temperature controller digital display)



On-load switch controllers are mounted on the screen of the main control room with openings pore as shown above.

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SAM conversion switch combination table

Printing	I Power	Stop	II Power
Code name	I	S	II
Contact No.	↖	↑	↗
1—2	✕		
3—4			✕
5—6	✕		
7—8			✕
9—10	✕		
11—12			✕
13—14	✕		
15—16			✕

SA2 conversion switch combination table

Printing	Manual	Stop	Automatic
Code name	M	S	A
contact No.	↖	↑	↗
1—2	✕		
3—4			✕
5—6	✕		
7—8			✕
9—10	✕		
11—12			✕
13—14	✕		
15—16			✕

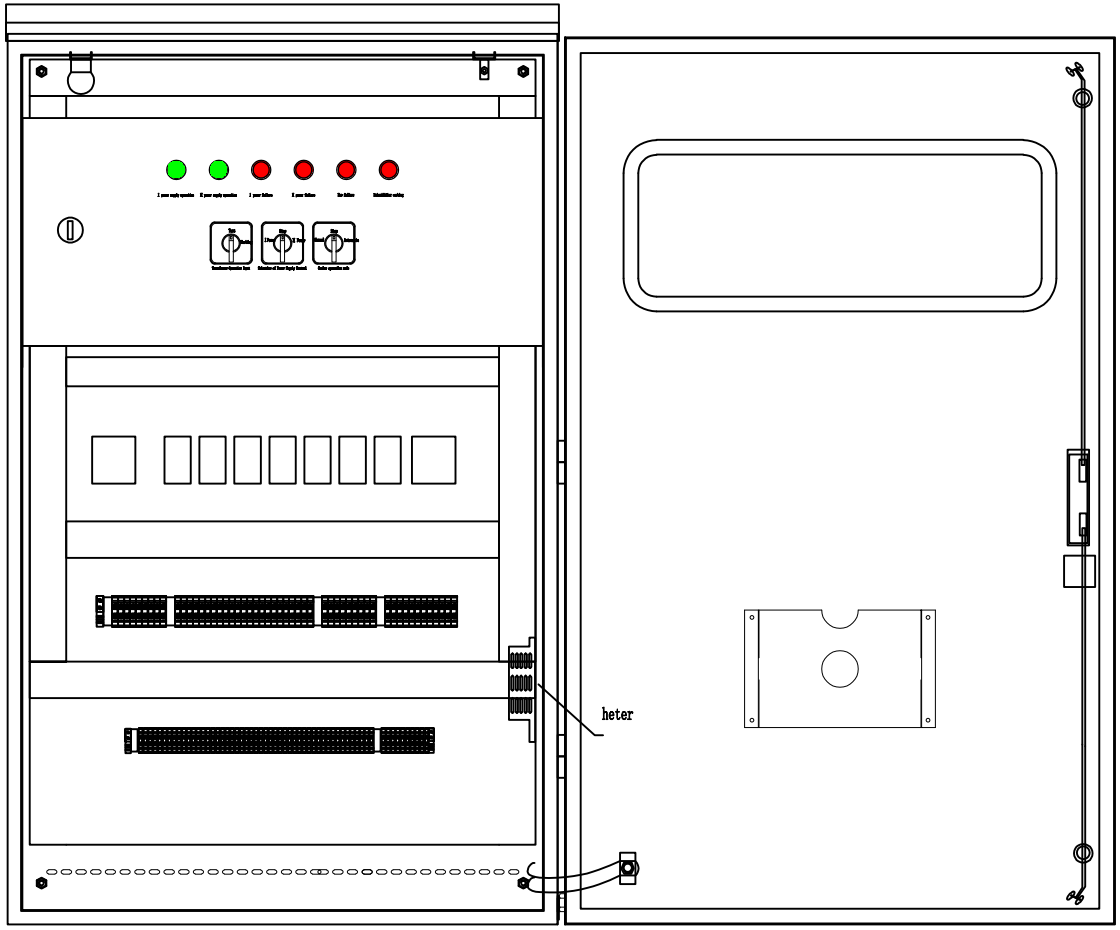
SA1 conversion switch combination table

Printing	Test	Working
Code name	T	W
Contact No.	↑	↗
1—2		✕
3—4		✕

NO.	Symbol	Name	Type		
1	KMS1 KMS2	AC contactor		2	
2	KM1-KMn	AC contactor		2	
3	QM1-QM3	Breaker		3	
4	QM4	Breaker		1	
5	QMA	Breaker		1	
6	QL1	Breaker		1	
7	1ZK-nZK	Motor protection circuit breaker		4	
8	1YJ、2YJ	Intermediate relay		2	
9	K1-K4	Intermediate relay		4	
10	QX1-QX2	Phase sequence relay		2	
11	KT1	Time relay		1	
12	SAM	Change-over switch		1	
13	SA1-SA2	Change-over switch		2	
14	SA3	Change-over switch		1	
15	1XD 2XD	Indicator light		2	
16	HF1-HF3	Indicator light		3	
17	HF4	Indicator light		1	
18		Terminal		10	
19		Terminal		201	
20		Terminal		80	
21		Terminal		10	
22		Marking terminal		9	
23	TH	Temperature and humidity controller		1	
24	R1	Heater		1	
25	S1	Limit switch		1	
26	TC	Temperature switch		1	
27	CZ	Socket		1	
28	HL1	Flashlight		1	
29	FAN1	Axial fan		1	
30					

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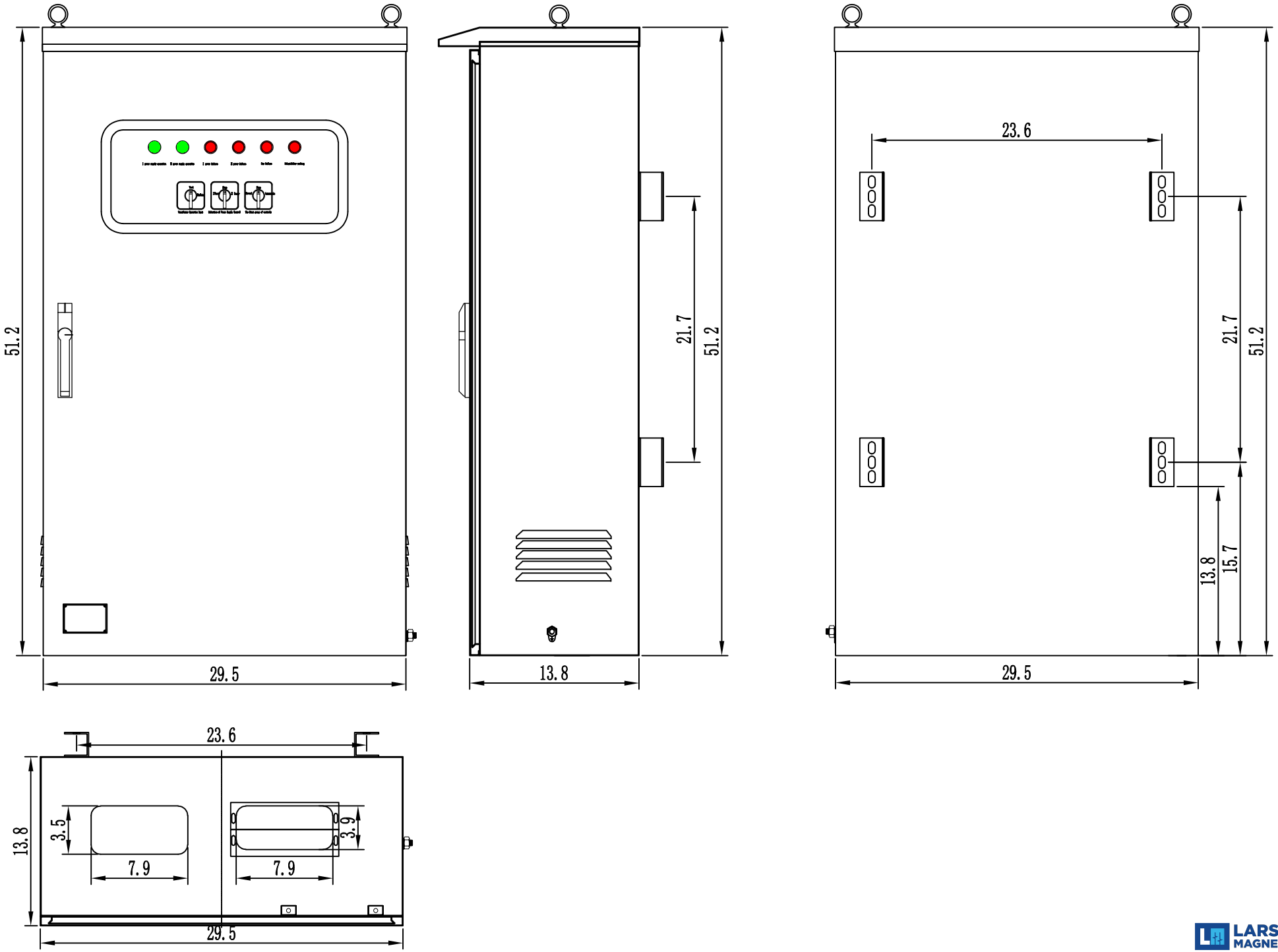
Drawing of cabinet layout



Note:

1. Hinge and lock are high-grade stainless steel produced by famous manufacturers.
2. There is a cable entry hole at the bottom of the box.
3. Front opening door.
4. Installation method: wall-mounted.
5. A guaze is attached to the blinds to avoid insects from entering.
6. There shall be no less than 100 square millimeters of grounded copper bars installed on both sides of the cabinet bottom.
7. A sealing strip is attached to the inside of the front door.
8. The transparent window in the front door is tempered glass and the frame is tightly wrapped with a sealing strip.
9. An incandesent light bulb is installed on the top.
10. The installed axial fan on the top completed cooling ventilation within the box
11. Cabinet material: SU304B
12. Cabinet size: 1300×750×350

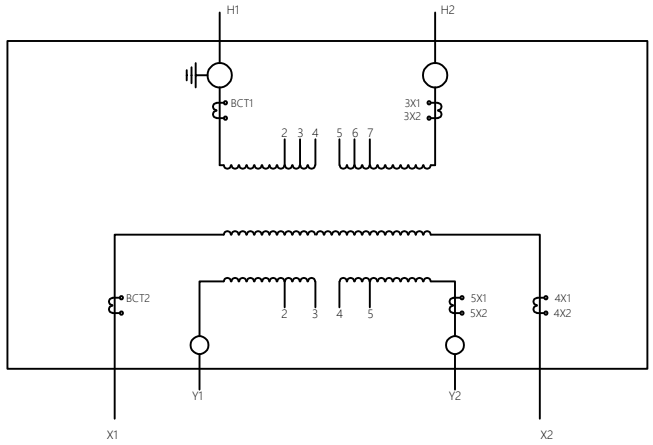
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3.9
7.9
29.5

SINGLE-PHASE AUTOTRANSFORMER

Type	
Serial Number	
Date of Assembly	
Operation Condition	Out door
Standard	IEEE C57.12.00
H.V BIL	750kV
X.V BIL	250kV
Y.V BIL	110kV
Operating Altitude	< 1000 msnm
Power ONAN/ONAF1/ONAF2	50/66.66 /83.33MVA
Rated Voltage	154/46/12.46 kV
Vector Group	i0i0
Frequency	60 Hz
Number of Phases	1
Cooling Method	ONAN/ONAF1/ONAF2
Impedance 154KV TO 46KV	% @50MVA
Impedance 154KV TO 13.2KV	% @17.5MVA
Impedance 46KV TO 13.2KV	% @17.5MVA
No-load Current (100%)	%
No-load losses (100%)	KW
Losses with ONAN load (75℃)	KW

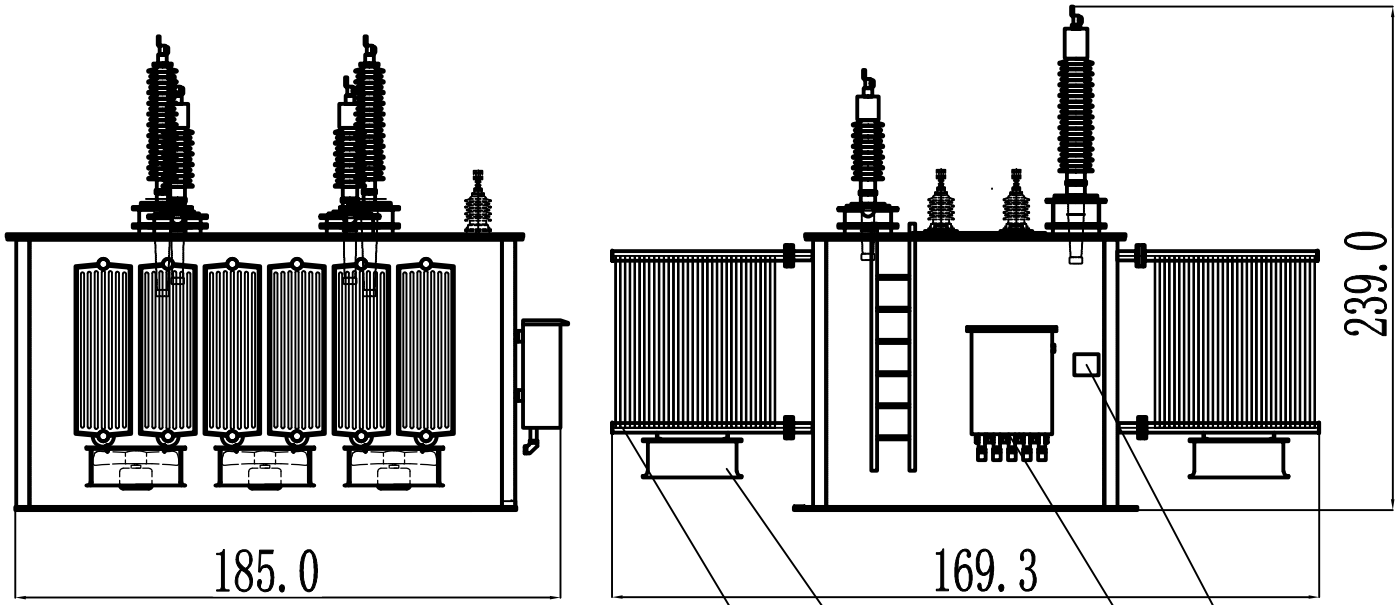
H-VOLTAGE				X- VOLTAGE			X- VOLTAGE		
TAP POSN	VOLTS(V)	AMPS(A)		VOLTS(V)	AMPS(A)		VOLTS(V)	AMPS(A)	
		50 MVA	83.33MVA		50 MVA	83.33 MVA		17.5 MVA	29.16 MVA
1	169400	511	852	46000	1883	3138	13083	1338	2229
2	165550	523	872				12460	1404	2340
3	161700	536	893						
4	157850	549	914				11837	1478	2463
5	154000	562	937						

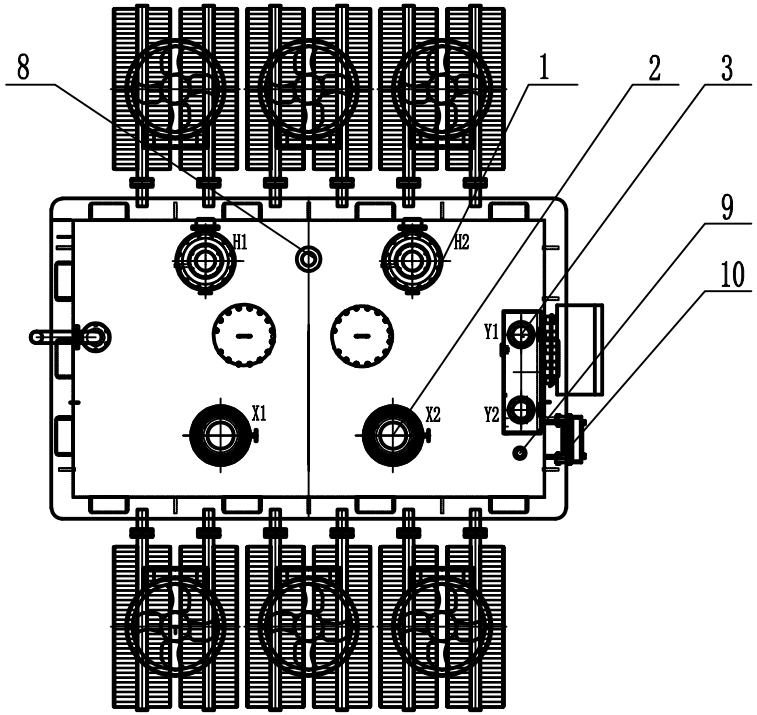


LARSON MAGNETICS

Larson Magnetics LLC
Kemp, TX USA

Item	Core&coil	Tank	Oil	Total	Shipping w/oil
Weight(lbs)	94666	42329	60848 (7925Gallons)	189600	167992





item	code	name	number	notes
11				
10		Ladder	1	
9		YV No-load tap chenger	1	
8		HV No-load tap chenger	1	
7		Fans control box	1	
6		Transformer nameplate	1	
5		Fan	6	
4		panel-type radiator	12	
3		Y.V Bushing	2	
2		X.V Bushing	2	
1		H.V Bushing	2	

mark	rev.	zone	revision	sign.	date
design	RR		Standard		
examined					
checked	RB				
efrated			Approved		

50-56/66.67-74.67/83.33-93.33 MVA Conservator Substation Transformer

Phase mark	Weight	scale
total page		

LARSON MAGNETICS

Remark: dimensions here are in inches.Only for approval/preliminary design..

Transformer cooler control cabinet information

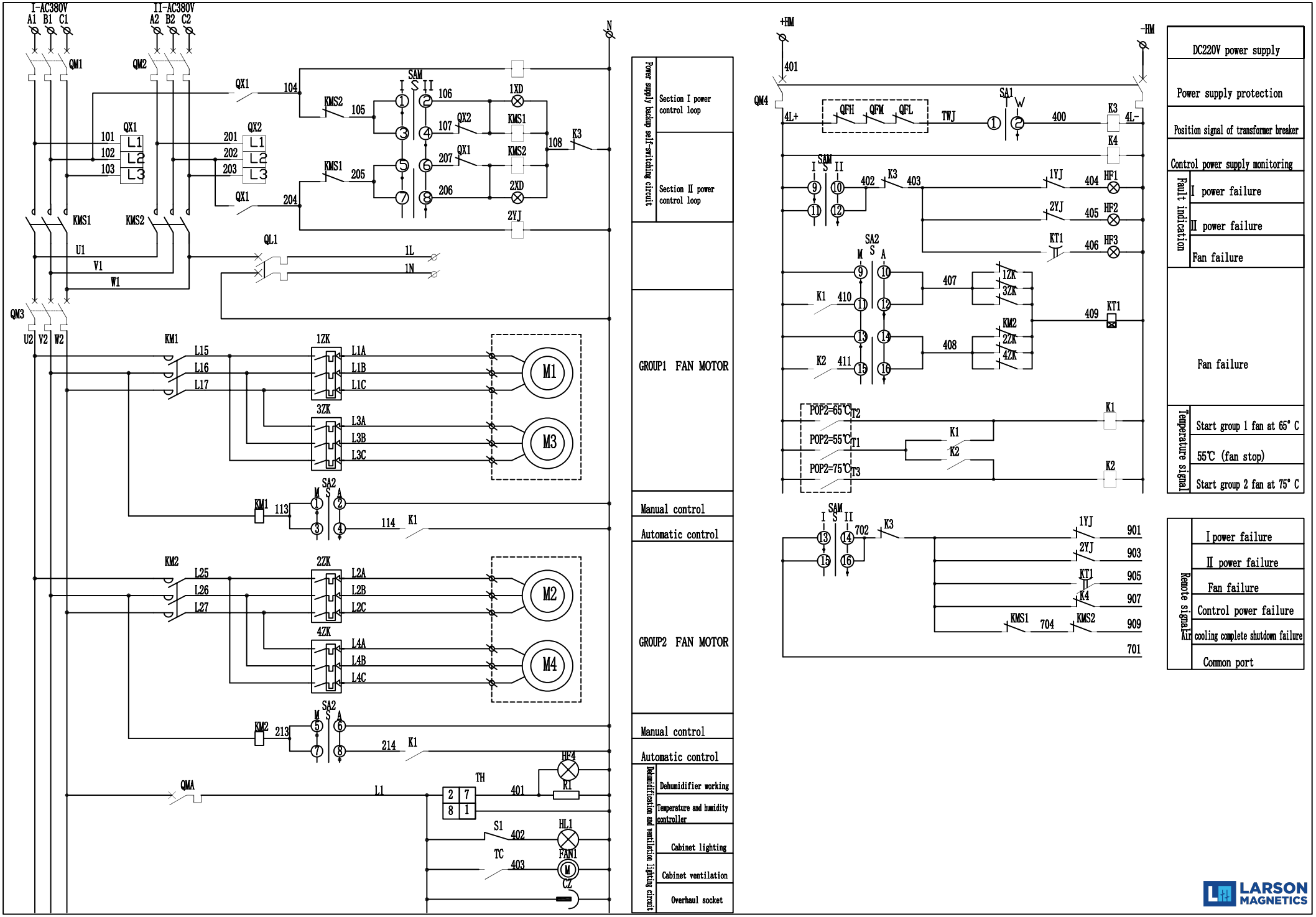
model:

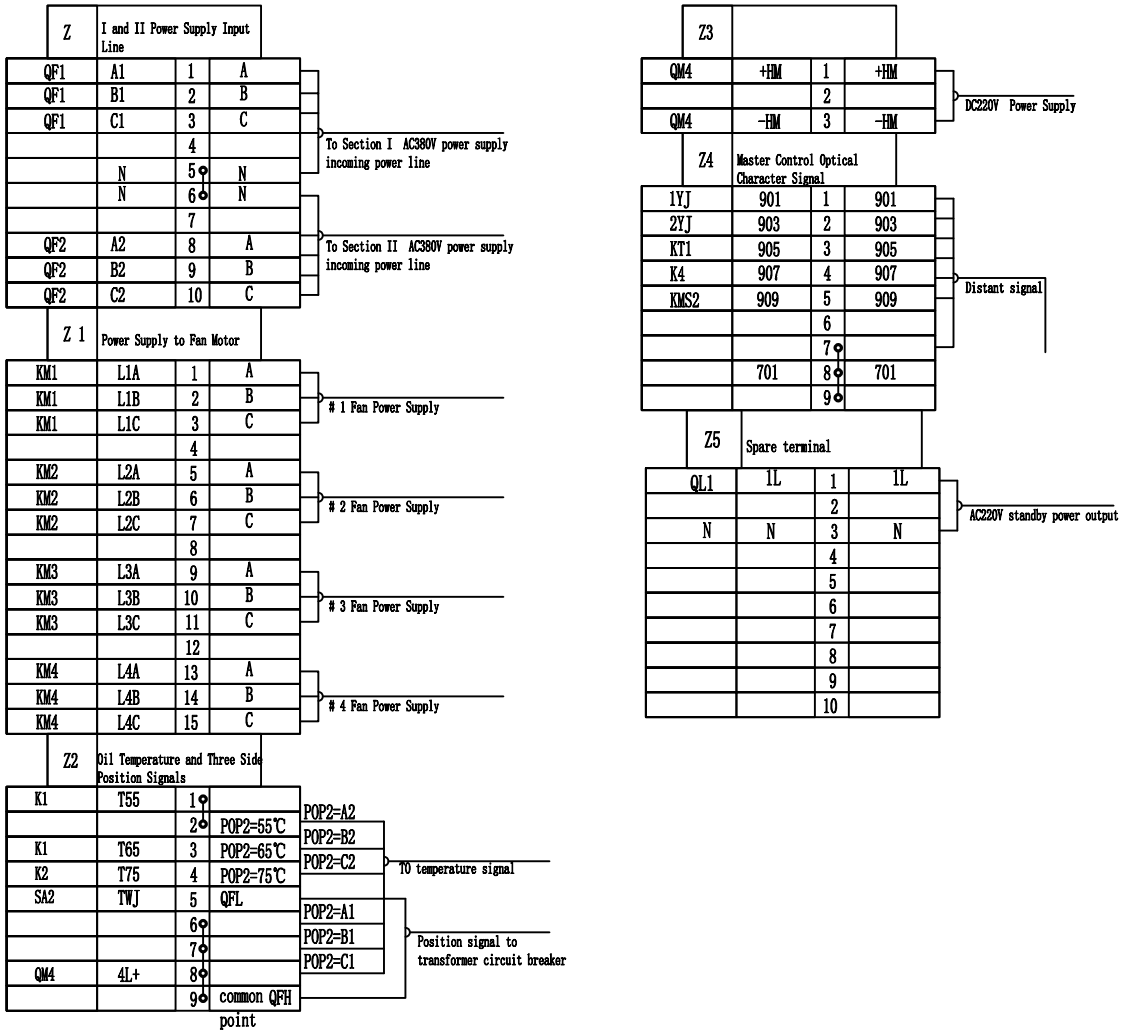
entry name:

Page number	Name	Remark
1	Contents	
2	Schematic diagram of transformer cooler control cabinet	
3	Terminal diagram of transformer cooler control cabinet	
4	Control principle diagram of transformer body	
5	Layout of transformer bushing current transformer	
6	Terminal diagram of transformer body	
7	Transformer cooler control cabinet cooler list	
8	Component layout of transformer cooler control cabinet	
9	Transformer cooler control cabinet outline dimension diagram	

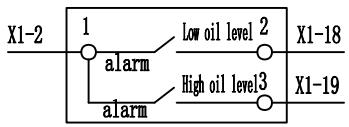
Note: 1. 4 fans, each with a power of 0.55kW
2. The risk control cabinet requires two power supply voltages, three-phase AC380V 50Hz
3. Install an on load switch controller on the background control screen with a 210 * 98 opening, Install two digital displays (one for oil level temperature controller and one for winding temperature controller) with holes of 152 * 76, Power supply L-N AC220V 50Hz

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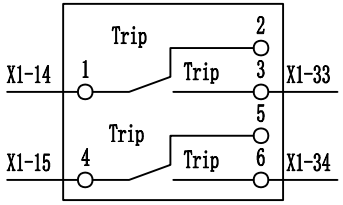

I-AC380V
A1 B1 C1
II-AC380V
A2 B2 C2
QM1
QM2
QX1
QX2
KMS1
KMS2
SAM
1XD
2XD
2YJ
K3
QL1
1L
1N
N
QM3
U2 V2 W2
KM1
1ZK
3ZK
M1
M3
SA2
K1
KM2
2ZK
4ZK
M2
M4
QMA
TH
HF4
R1
S1
HL1
FAN1
TC
CZ
Power supply backup self-switching circuit
Section I power control loop
Section II power control loop
GROUP1 FAN MOTOR
Manual control
Automatic control
GROUP2 FAN MOTOR
Manual control
Automatic control
Dehumidification and ventilation lighting circuit
Dehumidifier working
Temperature and humidity controller
Cabinet lighting
Cabinet ventilation
Overhaul socket
+HM
-HM
QM4
SA1
TWJ
QFH
QFM
QFL
1YJ
2YJ
KT1
HF1
HF2
HF3
POP2=65℃
POP2=55℃
POP2=75℃
DC220V power supply
Power supply protection
Position signal of transformer breaker
Control power supply monitoring
Fault indication
I power failure
II power failure
Fan failure
Fan failure
Temperature signal
Start group 1 fan at 65° C
55℃ (fan stop)
Start group 2 fan at 75° C
Remote signal
I power failure
II power failure
Fan failure
Control power failure
Air cooling complete shutdown failure
Common port


Z
I and II Power Supply Input Line
QF1 A1 1 A
QF1 B1 2 B
QF1 C1 3 C
4
N 5 N
N 6 N
7
QF2 A2 8 A
QF2 B2 9 B
QF2 C2 10 C
To Section I AC380V power supply incoming power line
To Section II AC380V power supply incoming power line
Z 1
Power Supply to Fan Motor
KM1 L1A 1 A
KM1 L1B 2 B
KM1 L1C 3 C
4
KM2 L2A 5 A
KM2 L2B 6 B
KM2 L2C 7 C
8
KM3 L3A 9 A
KM3 L3B 10 B
KM3 L3C 11 C
12
KM4 L4A 13 A
KM4 L4B 14 B
KM4 L4C 15 C
1 Fan Power Supply
2 Fan Power Supply
3 Fan Power Supply
4 Fan Power Supply
Z2
Oil Temperature and Three Side Position Signals
K1 T55 1
2 POP2=55℃
K1 T65 3 POP2=65℃
K2 T75 4 POP2=75℃
SA2 TWJ 5 QFL
6
7
QM4 4L+ 8
9 common QFH point
POP2=A2
POP2=B2
POP2=C2
TO temperature signal
POP2=A1
POP2=B1
POP2=C1
Position signal to transformer circuit breaker
Z3
QM4 +HM 1 +HM
2
QM4 -HM 3 -HM
DC220V Power Supply
Z4
Master Control Optical Character Signal
1YJ 901 1 901
2YJ 903 2 903
KT1 905 3 905
K4 907 4 907
KMS2 909 5 909
6
7
701 8 701
9
Distant signal
Z5
Spare terminal
QL1 1L 1 1L
2
N N 3 N
4
5
6
7
8
9
10
AC220V standby power output

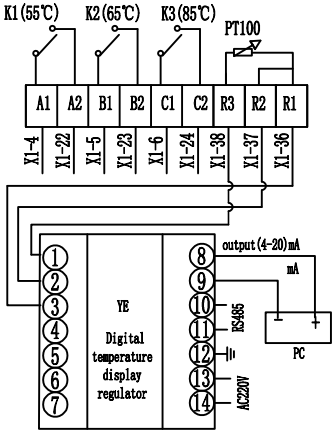
Tank oil level indicator POL1



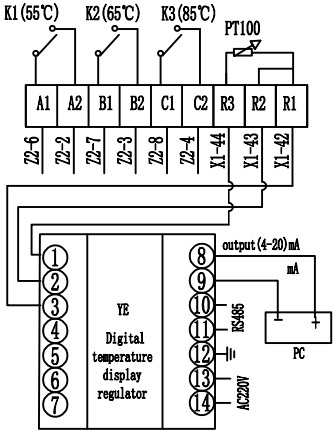
Pressure relief valve EPR1



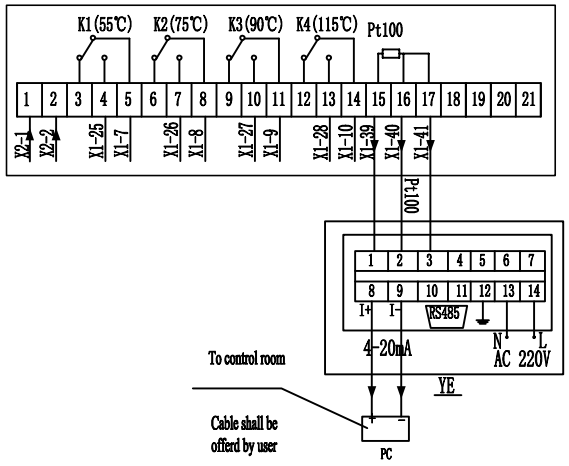
(Oil temperature controller)
Electrical wiring schematic diagram POP1

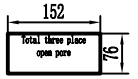


(Oil temperature controller)
Electrical wiring schematic diagram POP2

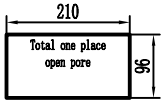


(winding thermometer)
Overall wiring diagram PW





YE The size of the opening pore on the screen of the main control room is as shown above (opening pore of temperature controller digital display)



On-load switch controllers are mounted on the screen of the main control room with openings pore as shown above.

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SAM conversion switch combination table

Printing	I Power	Stop	II Power
Code name	I	S	II
Contact No.	↖	↑	↗
1—2	✕		
3—4			✕
5—6	✕		
7—8			✕
9—10	✕		
11—12			✕
13—14	✕		
15—16			✕

SA2 conversion switch combination table

Printing	Manual	Stop	Automatic
Code name	M	S	A
contact No.	↖	↑	↗
1—2	✕		
3—4			✕
5—6	✕		
7—8			✕
9—10	✕		
11—12			✕
13—14	✕		
15—16			✕

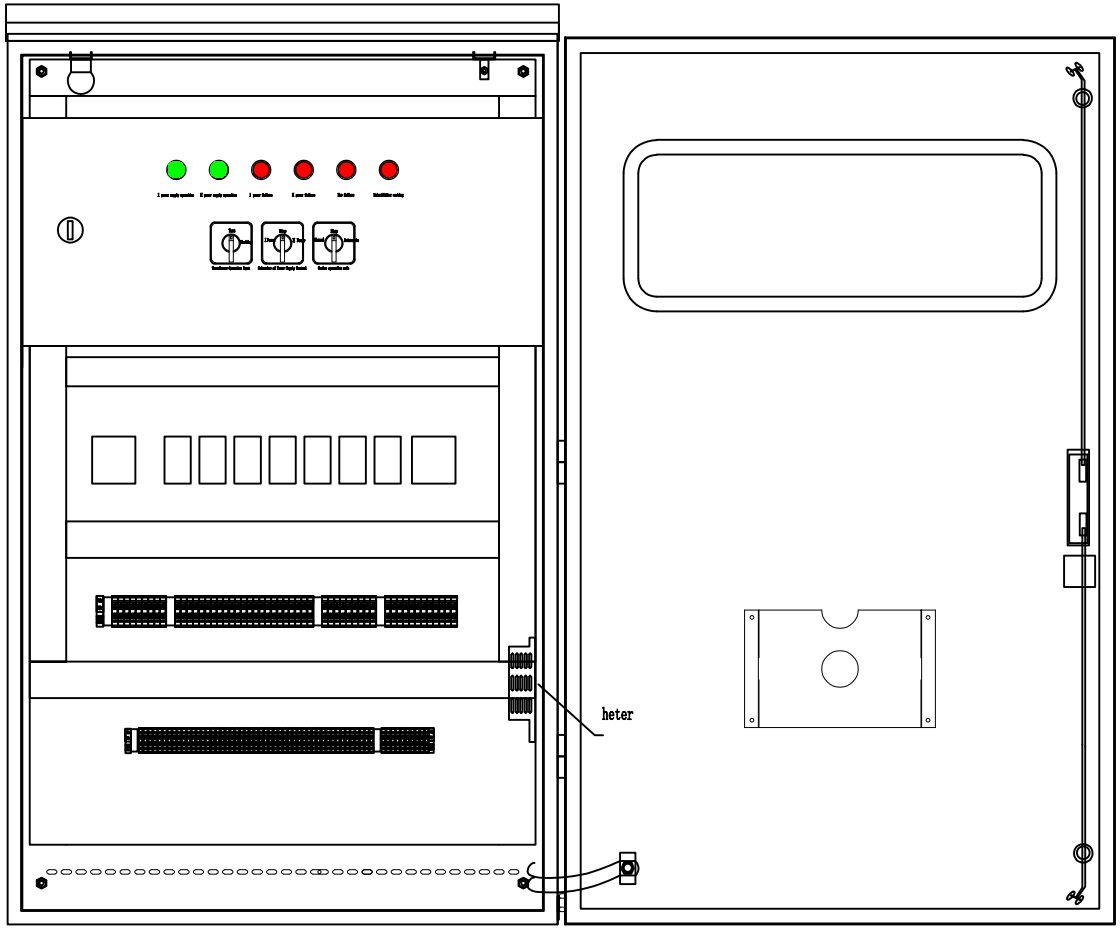
SA1 conversion switch combination table

Printing	Test	Working
Code name	T	W
Contact No.	↑	↗
1—2		✕
3—4		✕

NO.	Symbol	Name	Type		
1	KMS1 KMS2	AC contactor		2	
2	KM1-KMn	AC contactor		2	
3	QM1-QM3	Breaker		3	
4	QM4	Breaker		1	
5	QMA	Breaker		1	
6	QL1	Breaker		1	
7	1ZK-nZK	Motor protection circuit breaker		4	
8	1YJ、2YJ	Intermediate relay		2	
9	K1-K4	Intermediate relay		4	
10	QX1-QX2	Phase sequence relay		2	
11	KT1	Time relay		1	
12	SAM	Change-over switch		1	
13	SA1-SA2	Change-over switch		2	
14	SA3	Change-over switch		1	
15	1XD 2XD	Indicator light		2	
16	HF1-HF3	Indicator light		3	
17	HF4	Indicator light		1	
18		Terminal		10	
19		Terminal		201	
20		Terminal		80	
21		Terminal		10	
22		Marking terminal		9	
23	TH	Temperature and humidity controller		1	
24	R1	Heater		1	
25	S1	Limit switch		1	
26	TC	Temperature switch		1	
27	CZ	Socket		1	
28	HL1	Flashlight		1	
29	FAN1	Axial fan		1	
30					

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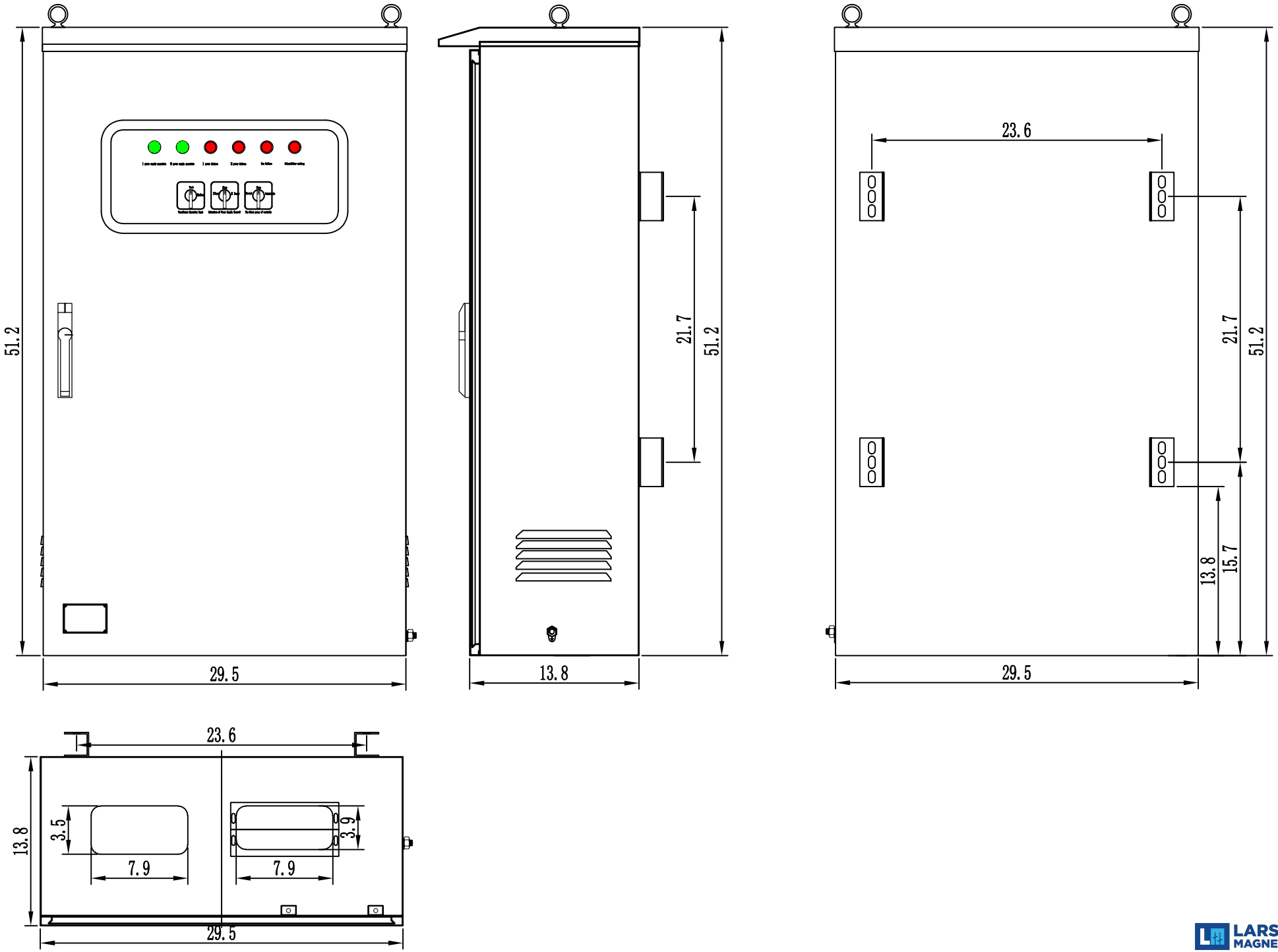
Drawing of cabinet layout



Note:

1. Hinge and lock are high-grade stainless steel produced by famous manufacturers.
2. There is a cable entry hole at the bottom of the box.
3. Front opening door.
4. Installation method: wall-mounted.
5. A guaze is attached to the blinds to avoid insects from entering.
6. There shall be no less than 100 square millimeters of grounded copper bars installed on both sides of the cabinet bottom.
7. A sealing strip is attached to the inside of the front door.
8. The transparent window in the front door is tempered glass and the frame is tightly wrapped with a sealing strip.
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11. Cabinet material: SU304B
12. Cabinet size: 1300×750×350

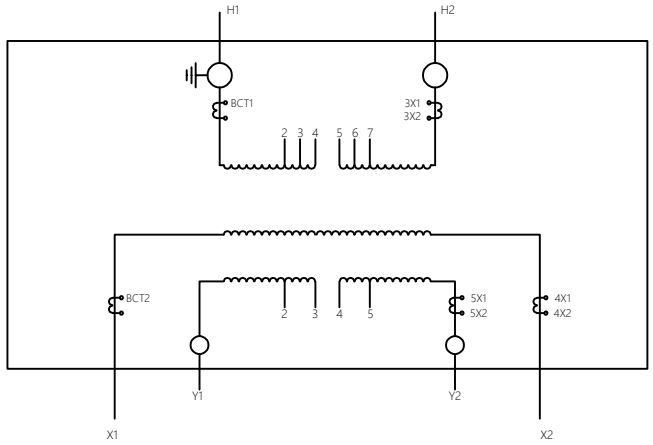
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7.9
29.5

SINGLE-PHASE AUTOTRANSFORMER

Type	
Serial Number	
Date of Assembly	
Operation Condition	Out door
Standard	IEEE C57.12.00
H.V BIL	750kV
X.V BIL	250kV
Y.V BIL	110kV
Operating Altitude	< 1000 msnm
Power ONAN/ONAF1/ONAF2	50/66.66 /83.33MVA
Rated Voltage	154/46/12.46 kV
Vector Group	i0i0
Frequency	60 Hz
Number of Phases	1
Cooling Method	ONAN/ONAF1/ONAF2
Impedance 154KV TO 46KV	% @50MVA
Impedance 154KV TO 13.2KV	% @17.5MVA
Impedance 46KV TO 13.2KV	% @17.5MVA
No-load Current (100%)	%
No-load losses (100%)	KW
Losses with ONAN load (75℃)	KW

H-VOLTAGE				X- VOLTAGE			X- VOLTAGE		
TAP POSN	VOLTS(V)	AMPS(A)		VOLTS(V)	AMPS(A)		VOLTS(V)	AMPS(A)	
		50 MVA	83.33MVA		50 MVA	83.33 MVA		17.5 MVA	29.16 MVA
1	169400	511	852	46000	1883	3138	13083	1338	2229
2	165550	523	872				12460	1404	2340
3	161700	536	893						
4	157850	549	914				11837	1478	2463
5	154000	562	937						



LARSON MAGNETICS

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Frequently Asked Questions (FAQ)

There are no Faqs